

REMARKS

In the Office Action, the Examiner rejected claims 1-51 under 35 U.S.C. § 101 as as directed to non-statutory subject matter; and rejected claims 1-51 under 35 U.S.C. § 103(a) as being unpatentable over Roberts et al., "Object Oriented Simulation Tools Necessary for a Flexible Batch Process Management Architecture" ("*Roberts*"). Based on the following remarks, Applicant respectfully traverses the rejections presented in the Office Action.

I. The Rejections of Claims 1-51 under 35 U.S.C. § 101

The Examiner states, "[c]laims 1-51 are rejected under 35 U.S.C. § 101 because the language denotes a listing of functional events of which no intended use is specified. The claims list computer processing a series of integral steps of the industrial process with no definitive credible result, the mere mention of an output is not credible" (Office Action at p. 3). The Examiner continues, "usefulness is another issue since the claims fail to answer the question of motive. The Office suggests amending the claims to denote a specific credible utility" (Office Action at p. 3). Applicants submit the claims recite statutory subject matter in their present form.

Applicants disagree that an intended use must be specified in order for a claim to recite statutory subject matter. Instead, the proper test is, "[t]he claimed invention as a whole must accomplish a practical application. That is, it must produce a 'useful, concrete, and tangible result'" (MPEP § 2106, citing *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373). The court in *State Street* stated, "[t]ransformation of data, representing discrete dollar amounts, by a machine through a

series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete, and tangible result' -- a final share price" (MPEP § 2106, citing *State Street* at 1373).

Claim 1, for example, recites a method comprising the steps of "storing model data," "initiating a first batch for simulated processing," "generating scheduling data for scheduling the initiation of simulated batches," and "generating output data indicative of a simulation of an industrial process utilizing said stored model data and said generated scheduling data." Like the data representing discrete dollar amounts in *State Street*, the claimed model data undergoes processing to generate an output. Like the final share price in *State Street*, the claimed output data constitutes a practical application of a calculation, because the output data is indicative of a simulation based on the model data. The simulation outputs are useful for any number of reasons, not limited to the Examiner's suggestion of "improving industrial process efficiency." Thus, claim 1 recites a method producing a useful, concrete, and tangible result.

Moreover, the MPEP states, "[o]nly when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. § 101" (MPEP § 2106). Simulation outputs are commonly used across a number of different technological disciplines to gain insight into the simulated process, as well as to evaluate possible solutions. Given the numerous uses of simulation outputs in the technological arts, the claimed "output data indicative of a simulation of an industrial process" can hardly be characterized as "devoid of any limitation to a practical application in the technological arts."

Although of different scope, independent claims 9, 18, 22, 30, and 38 are similarly directed toward simulating an industrial process, and also recite useful, concrete, and tangible results. Claims 1, 9, 18, 22, 30, and 38 therefore recite statutory subject matter. Claims 2-8, 10-17, 19-21, 23-29, 31-37, and 39-51 depend from one or more of claims 1, 9, 18, 22, 30, and 38, and are statutory at least due to their dependence from these claims.

II. The Rejections of Claims 1-51 under 35 U.S.C. § 103(a)

Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-51 because a *prima facie* case of obviousness has not been established with respect to these claims.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128.

A *prima facie* case of obviousness has not been established because, among other things, *Roberts* fails to teach or suggest each and every element recited by Applicant's claims.

Claim 1 recites, for example, a method of simulating an industrial process comprising, among other things, "utilizing [] stored model data to determine for each item of [] identified items of equipment a minimum possible simulated processing time

required for simulated processing of said latest initiated batch.” *Roberts* fails to teach this subject matter of claim 1.

The Examiner cites to portions of *Roberts* disclosing, “a knowledge base that contains rules about customer priority, equipment cleaning, process preference, equipment history, batch sequencing rules, cost history, cost estimates, and other knowledge” (Office Action at p. 5, citing *Roberts* p. 324, right column ¶ 5). However, *Roberts* is silent as to any minimum possible simulated processing times for equipment. Because *Roberts* fails to identify any equipment for which a minimum possible simulated processing time is determined, *Roberts* fails to teach or suggest “utilizing [] stored model data to determine for each item of [] identified items of equipment a minimum possible simulated processing time required for simulated processing of said latest initiated batch” as recited by claim 1.

Claim 1 further recites, “determining for [] identified items of equipment which are currently in use for processing batches currently being processed, the greatest time of use of previously simulated in processing batches using said items of equipment.” *Roberts* fails to teach or suggest this subject matter of claim 1.

The Examiner cites to the same portions of *Roberts* discussed above in alleging the reference teaches this subject matter of claim 1 (Office Action at p. 5, citing *Roberts* p. 324, right column ¶ 5). However, *Roberts* fails to teach any means for determining the time of use of batches previously simulated in processing, either as an entire batch or for identified pieces of equipment. Moreover, *Roberts* fails to teach determining such a time of use for batches currently being processed in a simulation. *Roberts* therefore fails to teach or suggest “determining for [] identified items of equipment which are

currently in use for processing batches currently being processed, the greatest time of use of previously simulated in processing batches using said items of equipment” as recited by claim 1.

Accordingly, *Roberts* fails to establish a *prima facie* case of obviousness with respect to claim 1, at least because the references fail to teach each and every element of the claim.

Claim 9 recites, for example, a method of simulating an industrial process comprising, among other things, “selecting, as a time increment step size ... [a] determined minimum time increment step size if ... [a] default time increment step size is greater than [a] determined minimum time increment step size.” *Roberts* fails to teach this subject matter of claim 9.

The Examiner cites to portions of *Roberts* disclosing a “plant data base” in alleging the reference teaches this subject matter of claim 9 (Office Action at p. 11, citing *Roberts* p. 328, left column, bullet number 5). However, regarding time increments, *Roberts* discloses only “[a] pseudo real-time simulation is maintained using fixed time increment updates generated by the computer clock.” Because *Roberts* fails to identify any selecting of a time increment other than a fixed time increment, *Roberts* fails to teach or suggest “selecting, as a time increment step size ... [a] determined minimum time increment step size if ... [a] default time increment step size is greater than [a] determined minimum time increment step size” as recited by claim 9.

Accordingly, *Roberts* fails to establish a *prima facie* case of obviousness with respect to claim 9, at least because the references fail to teach each and every element of the claim.

Claim 18 recites, for example, a method of simulating an industrial process comprising, among other things, "if at least one continuation condition associated with a process being simulated is not fulfilled by said generated output data simulating a delay in the continued processing of said process." *Roberts* fails to teach this subject matter of claim 18.

The Examiner again cites to portions of *Roberts* disclosing a "plant data base" in alleging the reference teaches this subject matter of claim 18 (Office Action at p. 16, citing *Roberts* p. 328, left column, bullet number 5). *Roberts* also discloses, "[a] simulation assistant processes [] changes in system states and maps these states to [a] generic control code specification ... [s]ystem states are updated based on the specification by sending messages to the equipment instances. The equipment instances receive these messages and update their own internal states" (*Roberts* p. 327, ¶ 9 - p. 328, ¶ 1). However, *Roberts* is silent as to any continuation conditions, and thus certainly fails to disclose that output data simulating a delay is generated if a continuation condition is not fulfilled. *Roberts*, therefore, fails to teach or suggest "if at least one continuation condition associated with a process being simulated is not fulfilled by said generated output data simulating a delay in the continued processing of said process" as recited by claim 18.

Accordingly, *Roberts* fails to establish a *prima facie* case of obviousness with respect to claim 18, at least because the references fail to teach each and every element of the claim.

Independent claim 22, though of different scope from claim 1, recites limitations similar to those set forth above with respect to claim 1. Independent claim 30, though of

different scope from claim 9, recites limitations similar to those set forth above with respect to claim 9. Independent claim 38, though of different scope from claim 18, recites limitations similar to those set forth above with respect to claim 18. Claims 2-8, 10-17, 19-21, 23-29, 31-37, and 39-51 each depend from one or more of claims 1, 9, 18, 22, 30, and 38, and are therefore allowable at least due to their dependence from allowable base claims.

VII. Conclusion

In view of the foregoing remarks, Applicant submits that this claimed invention, is neither anticipated nor rendered obvious in view of the cited art. Applicant therefore requests the Examiner's reconsideration and reexamination of the application and the timely allowance of the pending claims.

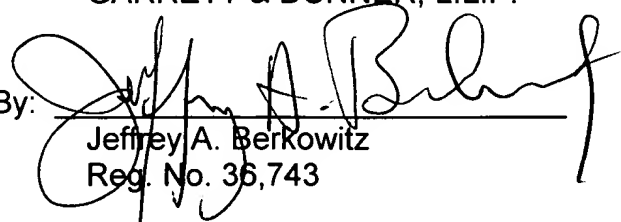
Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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